EPA comments to the BERA Refined ESV Technical Memorandum
Columbia Falls Aluminum Company NPL Site
Columbia Falls, Montana
September 25, 2018

1) Deterministic Exposure Point Concentrations (Page 11) - Please provide examples of reasons to deviate for the Pro-UCL-recommended 95th percentile upper confidence limit of the mean. Defaulting to the maximum concentration when this value is less than the 95th percentile upper confidence limit of the mean is not in-line with USEPA's ProUCL Technical Guide.

2) Deterministic Exposure Point Concentrations -Soil (Page 11) – The technical memorandum describes EPC calculations for ISM samples for the entire operational area for large home range receptors. Please clarify the text to include a description for how grab samples collected within the operational area will be used in the BERA. Please clarify how EPCs will be calculated for large home range receptors with home ranges greater than the Site (i.e., explanation for how ISM and grab samples will be combined is needed recognizing that sampling technique varied throughout the Site).

3) Deterministic Exposure Point Concentrations -Soil (Page 11) – The technical memorandum describes the EPC for small home range receptors when ISM samples are available. Please clarify the text to include a description for how grab samples collected within the same exposure area will be used in the BERA.

4) Deterministic Exposure Point Concentrations - Soil (Page 12) – the depth-weighted average approach for 0-2 feet of soil is not appropriate for assessing risk to non-burrowing receptors that are exposed to COPCs primarily in the zero to six-inch depth interval.

5) Deterministic Exposure Point Concentrations - Surface Water (Page 13) – Please provide clarification of the surface water bodies that will be used in the EPC calculation for large home range receptors whose home range is greater than the Site.

6) Probabilistic Exposure Point Concentrations (Page 14) – Truncation of the exposure concentrations based on upper and lower tolerance limits in the main risk characterization of the BERA is not appropriate if data are highly variable. This type of analysis may be appropriate in an uncertainty discussion regarding representativeness of EPCs.

7) Toxicity Reference Values (Page 26) – *Development of Toxicity Reference Values for Conducting Ecological Risk Assessment at Naval Facilities in California, Interim Final* (Engineering Field Activity West 1998) should also be considered as a source for toxicity reference values.

8) Toxicity Reference Values - Dioxin/Furans (Page 28) – References to Table 6 in this section should reference Table 7.

9) Toxicity Reference Values – Dioxin/Furans (Page 28) – The toxicity of dioxins and furans vary by bird species (Farmahin et al. 2012, 2013) and species tend to fall into one of three sensitivity categories (high, medium, and low). We suggest using a TRV derived for a bird within the high sensitivity category (e.g., chicken) or reducing the TRV derived for ring-necked pheasants (medium sensitivity) to a level that is applicable to high sensitivity birds.

References submitted with comments

Engineering Field Activity West. 1998. *Development of Toxicity Reference Values for Conducting Ecological Risk Assessment at Naval Facilities in California, Interim Final.* EFA West, Naval Facilities Engineering Command. United States Navy. San Bruno, CA. September 1998.

Farmahin, R., et al. 2012. Sequence and in vitro function of chicken, ring-necked pheasant, and Japanese quail AHR1 predict in vivo sensitivity to dioxins. Environmental Science and Technology 46: 2967-2975.

Farmahin, R., et al. 2013. Amino Acid Sequence of the ligand-binding domain of the aryl hydrocarbon receptor 1 predicts sensitivity of wild birds to effects of dioxin-like compounds. Toxicological Sciences 131:139-152.